

Two new taxa of *Drepanosiphum* Koch, 1855 (Homoptera, Aphididae) with a key to species

by

D. HILLE RIS LAMBERS

(*Bladluisonderzoek T.N.O., Bennekom, Netherlands*)

ABSTRACT

Drepanosiphum dixonii n. sp., from *Acer campestre*, England, Netherlands, and Yuugoslavia, and *Drepanosiphum platanoides iranicum* n. subsp., from *Acer cappadocicum*, Iran, are described.

Drepanosiphon zimmermanni Börner, 1940, and *Drepanosiphon steveni* Bozhko, 1961, are considered synonyms of *Drepanosiphum oregonensis* Granovsky, 1939.

Drepanosiphum dixonii n. sp.

Alate viviparous female

Colour in life greenish ivory, with brown head and dark brown to black thorax, and with two broad blackish bars on mid dorsum cephalad the siphunculi, with pale legs, antennae and siphunculi. In mounted specimens head brown to blackish brown, sclerotic, paler near the compound eyes, blackish around the ocelli; pronotum pale, in the middle usually brown or brownish; mesonotum brown to blackish; abdomen colourless with on tergites IV and V pleurally fused, thick, dark brown to black spino-pleural sclerotic bars; in front of each siphunculus a thick antesiphuncular sclerite not darker than the spino-pleural bars. Body about 2.50—3.25 mm long. Dorsal hairs about 0.060—0.070 mm long. Antennae to more than twice as long as body; basal segments as dark as head or darker, to blackish brown; flagellum pale, yellowish, with the very base of segment III sometimes dark, the very apex always brown, and from distal half of segment IV apicad gradually darker brown; segment III with 9—20 rhinaria more or less in a row on basal $\frac{2}{5}$ — $\frac{4}{9}$ part; these rhinaria not narrow, rarely more than $\frac{5}{9}$ times as long as wide; hairs on segment III about 0.017 mm long, about $\frac{1}{4}$ — $\frac{1}{3}$ of basal diameter of segment. Rostrum not reaching middle coxae; last segment about 0.145—0.17 mm long, just longer than second joint of hind tarsi, with 8—12 hairs besides the 3 subapical pairs. Legs pale, with only the very apices of the femora, and the bases of tibiae dark brown to black; no ventral brown to black stripe on the fore femora; the apices of the tibiae not or vaguely brownish. Wings with thin brownish veins, with very small, inconspicuous dusky triangles to the apices of the branches of the veins, with a darkish blotch at the apex of the pale pterostigma, but without a trace of a dusky or dark area on the tip of the fore wings. Siphunculi about $\frac{2}{7}$ of length of body, mostly pale with brown apex and faintly pigmented base, rarely black, in the middle about 0.12 mm thick, from there gradually tapering towards apex, at basal $\frac{1}{5}$ part slightly attenuated, and therefore very slightly swollen. Cauda colourless, variable, sometimes not or hardly knobbed, sometimes distinctly knobbed, with 5, sometimes 6 stout hairs on the knob, and often 1—2 hairs on the basal portion; knob wider than long.

Measurements in mm.

No.	Length body	Ant.	Ant. segments				Rhin. on III	Siph.	Cau.
			III	IV	V	VI			
1	2.70	5.45	1.43	1.33	1.12	0.19 + 1.11	14 & 15	0.83	0.15
2	2.94	5.49	1.34	1.32	1.16	0.19 + 1.21	16 & 19	0.81	0.13
3	3.11	5.53	1.42	1.37	1.07	0.20 + 1.20	(9?) & 15	0.81	0.14
4	3.04	6.19	1.50	1.47	1.28	0.21 + 1.29	12 & 12	0.87	0.15
5	2.50	5.09	1.29	1.22	1.01	0.19 + 1.12	11 & 13	0.76	0.14
6	3.17	5.65	1.46	1.40	1.08	0.19 + 1.23	12 & 14	0.88	0.15
7	2.33	5.66	1.42	1.41	1.10	0.19 + 1.23	15 & 17	0.75	0.14

(1—6, from *Acer campestre*, Harpenden (Herts.), England, X.1968, reared by A. F. DIXON; 7, from yellow trap, Kranj, Yougoslavia, V—VI.1964, leg. J. KUS).

Oviparous female

Colour in life not known. In mounted specimens body about 2.70—3.25 mm long, with the part behind the siphunculi very elongated. Head cloudy brown; pronotum pale with middle part brown; mesonotum at both anterior corners with a large brown convex sclerotic patch and in the middle on anterior half a brown unpaired patch; abdomen with the same antesiphuncular sclerites and bars on tergites IV and V as in alatae, but besides with narrow and mostly much vaguer sclerotic bars across tergites II and III, and sometimes also tergite I, but the latter bars mostly broken in the middle; sometimes rather distinct brownish marginal sclerites on segments III and IV. Dorsal hairs long, on posterior tergite mostly with fine apices and up to 0.19 mm long, on anterior tergites mostly shorter and with incassate apices. Head in all specimens with small ocelli. Antennae rather as in alatae; segment III with about 2—9 rather small, circular rhinaria. Legs rather as in alatae, but femora with the very apices not dark; hind tibiae not much thicker than other tibiae, with some 70—90 pseudosensoria on basal half, mainly on ventral side. Siphunculi pale with dark brown apices. Cauda rounded the same way as the subanal plate. Other characters more or less as in alate viviparous female.

Measurements in mm.

No.	Length body	Ant.	Ant. segments				Rhin. on III	Siph.	Cau.
			III	IV	V	VI			
1	2.81	4.45	1.08	1.01	0.91	0.18 + 1.00	3 & 7	0.72	0.11
2	3.13	4.45	1.09	1.00	0.87	0.18 + 1.06	3 & 6	0.75	0.10
3	3.18	4.35	1.14	0.98	0.84	0.17 + 0.96	7 & 8	0.76	0.11
4	2.93	4.28	1.14	0.99	0.82	0.16 + 0.91	5 & 5	0.71	0.10

(1—4, from *Acer campestre*, Woking (Surrey), England, 1.X.1966, reared by A. F. DIXON).

Alate male

Colour in life not known. In mounted specimens body smaller and narrower than in alate female, but with the same sclerotisation, etc. Ant. segment III round-about with about 70—90 small, mostly circular but sometimes transversely oval rhinaria over its whole length; segment IV with about 30—40 similar rhinaria; segment V with about 10—12 similar secondary rhinaria almost in single file on basal $\frac{2}{5}$ — $\frac{3}{5}$ part. Cauda not constricted. Genitalia normal, with small, blunt claspers. Other characters as in alate female.

Measurements in mm.

No.	Length body	Ant.	Ant. segments				Rhin. on segment			Siph.	Cau.
			III	IV	V	VI	III	IV	V		
1	2.38	4.74	1.19	1.04	1.01	0.17 + 1.12	74 & 85	38 & ?	12 & ?	0.73	0.10

(from *Acer campestre*, Woking (Surrey), England, 6.X.1966, reared by A. F. DIXON).

Discussion. *Drepanosiphum aceris* Koch is characterized by having a blackish area at the tip of the fore wings, as figured in KOCH's book. That species has for many years been known as *D. acerinum* (Wlk.), but as WALKER's material shows that was another aphid. VAN DER GOOT (1915) described an aphid from *Acer campestre*, collected in the autumn, as *D. acerina* Wlk. But though he refers to the venation of the wings, he does not mention a dark blotch on the fore wings. This looks like an omission. However, in 1964 a much damaged *Drepanosiphum* very much like *D. aceris* but without a dark blotch in the wing was obtained from a Moericke trap in the coastal area of the Netherlands, and a similar aphid turned up in a trap in Yugoslavia. Searches on *Acer* species in the trapping areas did not provide more specimens. The host remained unknown until Dr. A. F. DIXON, during my visit to Glasgow showed me a culture with brachypterous alatae on *Acer campestre*. The brachypterous alatae, males with full wings, and alatae with full wings had no blotch on the fore wings, and they agreed in almost every respect with the trapped specimens from the Netherlands and Yugoslavia. The brachyptery could explain why the aphids were so very rare in traps. In other species of *Drepanosiphum* that I regularly obtain from traps brachyptery is not known. In spring and autumn macropterous animals seem to occur, and it is possible that VAN DER GOOT described such animals in his book.

The oviparae given by Dr. DIXON all show ocelli and they have some secondary rhinaria on the antennae. Some degree of alatoidness in *Drepanosiphum* oviparae is not rare. I also found oviparous *D. platanoides* (Schrank) with ocelli, but they had no rhinaria on ant. segment III.

If the differences between *D. aceris* and *D. dixonii* were restricted to the presence or absence of a blotch in the fore wings, this might be considered as intraspecific variability. But the smaller number of hairs on the last rostral segment, the absence of black or dark socks to the tibiae and the brachyptery of *D. dixonii* in my opinion point to specific difference. Yet the presence of a dark spot dorso-apically in the stigma in both species suggests that they are very closely interrelated.

The Yugoslav specimen at first sight looked like a different species, but closer inspection revealed that it is only an unusually heavily pigmented specimen, in which the thorax, bars on abdomen and siphunculi are evenly black. In this aphid the base of ant. segment III is so deep brown that it might easily be mistaken for *D. oregonensis* Granovsky. However, it has the typical dark apex of the pterostigma, and it does not have the typical dark stripe on the undersides of the fore femora which even in pale *D. oregonensis* is very conspicuous. The dorsal hairs in the Yugoslav specimen are shorter than in Western European specimens, and they often have a slightly incrassate apex.

Embryos strongly resemble those of *D. aceris*, but the pleural hairs are even shorter.

Nearly all the material serving for the description was received from Dr. A. F. DIXON, Glasgow, who reared it from stock obtained from England. It is with pleasure that I dedicate this aphid to this friend, whose discovery of the spaced gregariousness in *Drepanosiphum platanoides* (Schrank) opened new alleys of thought.

Types. Holotype: alate viviparous female (no. 1 of measurements), from *Acer campestre*, Harpenden (Herts.), England, X.1968, reared by A. F. DIXON from stock received from R. N. B. PRIOR and H. L. G. STROYAN. Paratypes: alate viviparous female with collecting data as for holotype; alate viviparae and sexuals from *Acer campestre*, harvested at various dates in 1966 from nursery stock originating from Woking (Surrey), England; alate vivipara from yellow trap, Kranj, Yugoslavia, V—VI.1964, leg. M. KUS; alate vivipara, from yellow trap, Lisse, Netherlands, VI.1964, leg. D.H.R.L.

Drepanosiphum oregonensis Granovsky, 1939

When I recorded (1966) *Drepanosiphum zimmermanni* Börner from *Acer macrophyllum* from California, I had overlooked the description of *D. oregonensis* Granovsky from the same host plant, as Dr. F. W. QUEDNAU kindly pointed out. A specimen from the type sample of *Drepanosiphon steveni* Bozhko, 1961 (but first recorded 1957, p. 211, by her as manuscript name with a microphotograph) appeared also to be *Drepanosiphum oregonensis* Granovsky. Both *Drepanosiphon zimmermanni* Börner, 1940, and *Drepanosiphon steveni* Bozhko, 1961, are synonyms of *Drepanosiphum oregonensis* Granovsky, 1939.

Drepanosiphum platanoides subspec. *iranicum* n. subsp.

Alate viviparous female

Colour in life not known. In mounted specimens body about as in main species,

about 3.00—4.25 mm long. Sclerotisation of body as in early summer form of main species, without dark bars on abdomen, but even teneral early summer specimens with a black spot near the base of each siphunculus. Other characters more or less as in main species.

Measurements in mm.

No.	Length body	Ant.	Ant. segments				Rhin. on III	Siph.	Cau.
			III	IV	V	VI			
1	4.06	6.62	1.98	1.69	1.38	0.17 + 1.08	23 & 26	1.02	0.18
2	3.11	5.23	1.60	1.26	1.01	0.14 + 0.97	17 & 18	0.91	0.15
3	3.69	5.84	1.75	1.30	1.21	0.16 + 1.09	20 & 21	0.99	0.17
4	3.49	6.11	1.79	1.62	1.20	0.15 + 1.08	16 & 18	0.99	0.18
5	4.04	6.44	1.91	1.58	1.28	0.16 + 1.14	20 & 21	1.01	0.19
6	3.78	6.01	1.81	1.52	1.20	0.15 + 1.03	24 & 24	1.00	0.18

(1—2, from *Acer cappadocicum*, Karaj, Iran, 10.V.1960, leg. R. VAN DEN BOSCH no. IR 64; 3—4, idem, no. IR 67; 5—6, *Acer* sp., Chaloos, Iran, 6.VI.1960, leg. R. VAN DEN BOSCH no. IR 119).

Discussion. It is well known that sclerotisation in *Drepanosiphum platanoides* (Schrank) varies considerably, and that in the autumn alatae appear with a series of blackish sclerotic bars across the abdomen. The latter specimens, which VAN DER GOOT (1915) believed to be sexuparae, always have a black sclerotic spot near basis of each siphunculus. But in all the *platanoides* material from Portugal to Georgia, Russia, and from U.S.A. that I could examine, specimens without black bars on the abdomen have no trace of black spots near the siphunculi. In the rather extensive Iran material from *Acer cappadocicum* every specimen, however dark or pale its thorax, has a dark or black sclerotic spot near the base of each siphunculus (fig. 6), but there is no trace of any other sclerotisation on the abdomen.

It may be significant that the host tree of this subspecies, *Acer cappadocicum*, has milky juice, but that in Europe *Acer platanoides* with milky juice is not a good host to *D. platanoides*, except sometimes in the autumn.

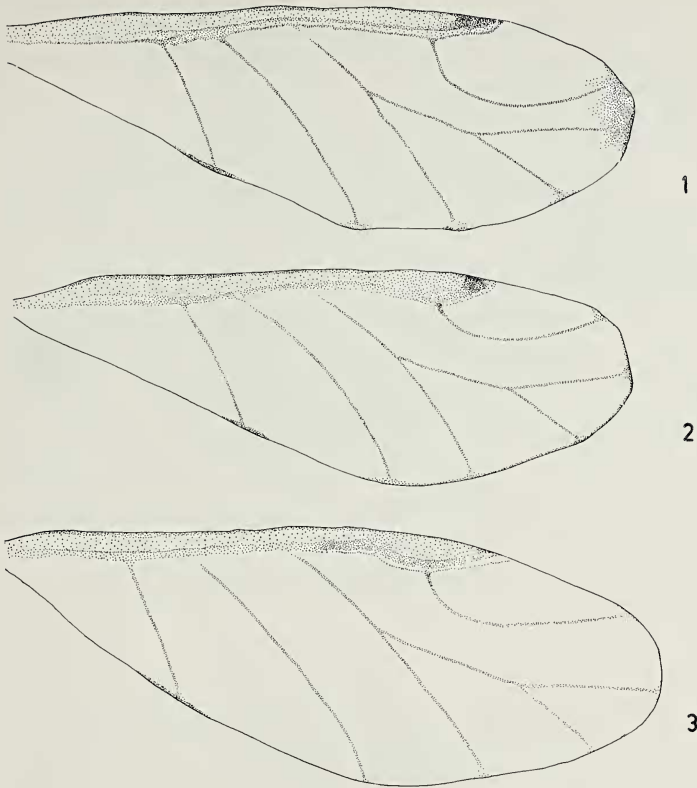
Embryos and first instar larvae do not differ much from those of European and American *D. platanoides*, except that they have rather longer pleural hairs.

Types. Holotype: alate viviparous female (no. 1 of measurements), from *Acer cappadocicum*, Karaj, Iran, 19.V.1960, leg. R. VAN DEN BOSCH no. IR 64. Paratypes: alate viviparae with collecting data as for holotype; and from the same host and locality, date and collector, no. IR 76; and from Chaloos, 6.VI.1960, leg. R. VAN DEN BOSCH no. IR 119. In the author's collection.

A key to the species of *Drepanosiphum* Koch

Alate viviparae

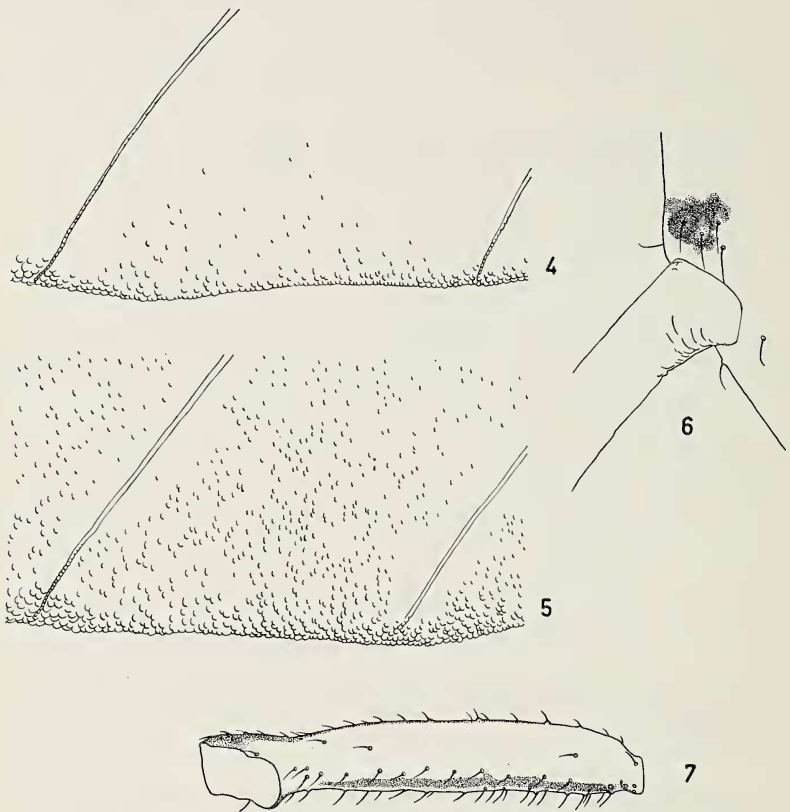
- 1 (2) Fore wings at apex with a dark to black blotch (fig. 1), and a similarly pigmented spot at the distal end of the pterostigma. On *Acer campestre*.
Europe. *D. aceris* Koch



Figs. 1—3, fore wings. 1, *Drepanosiphum aceris* Koch; 2, *D. dixonii* n. sp.; 3, *D. braggii* Gillette; \times 23.5.

- 2 (1) Fore wings at apex pigmented like the rest, but sometimes distal end of stigma darker than the rest of the stigma.
- 3 (4) Stigma on posterior border with a brown band darker than any other part of the wing, and this band near its proximal end with an enlargement (fig. 3). Siphunculi not or rarely swollen. Ant. segment III rarely with more than 12 rhinaria. On *Acer negundo*. Western America.
D. braggii Gillette
- 4 (3) Stigma on posterior border often with a distinct or indistinct brown band, but this band never enlarged near its proximal end, and not darker than the subcosta. Siphunculi mostly distinctly somewhat swollen. Rhinaria mostly more numerous.
- 5 (6) Stigma at its distal end darkened or with a small blotch that is darker than any other part of the stigma (fig. 2). Often brachypterous. Fore femora without a trace of a ventral brown or black stripe. Abdomen always with two dark, thick pleuro-spinal bars on tergites IV and V. On *Acer campestre*. Western and Central Europe.
D. dixonii n. sp.
- 6 (5) Stigma only with a more or less faint brownish band of even thickness

along its posterior border. Never brachypterous. Fore femora often with a brown or black ventral stripe, and then in lateral view with the ventral margin much blacker than that of the other femora. Often no bars, or more bars on abdomen.



Figs. 4—5, areas between cubitus and media, $\times 71$; 4, *Drepanosiphum platanoides iranicum* n. subsp.; 5, *D. platanoides* (Schrank); fig. 6, base of siphunculus with blackish blotch, *D. platanoides iranicum* n. subsp., $\times 69$; fig. 7, fore femur, *D. oregonensis* Granovsky, $\times 72$.

- 7 (10) Last rostral segment 0.140 mm long or longer. Embryos with long knobbed spinal hairs also on abd. tergites I—V.
- 8 (9) No blotch near bases of siphunculi in specimens without sclerotic bars on abdomen. Area between media and cubitus mostly more than half covered with minute scales (fig. 5). On many *Acer* spp., Europe, North America.
D. platanoides (Schrank)
- 9 (8) In front and just outside each siphunculus a brown to deep black blotch also in specimens without sclerotic bars on abdomen (fig. 6). Area between media and cubitus only at the edge of the wing with scales (fig. 4). On *Acer cappadocicum*. Iran.

D. platanoides subsp. *iranicum* n. subsp.

- 10 (7) Last rostral segment rarely over 0.130 mm long. Embryos with very short and inconspicuous spinal hairs on abd. tergites I—VI or I—V.
- 11 (12) Near base of ant. segment III an area darker than the part just distad. Fore femora very much thicker than hind femora, with a very distinct blackish ventral stripe (fig. 7), much thicker than siphunculi. Only very dark specimens that have a blackish brown mesosternum with a blackish spot near bases of siphunculi. On *Acer monspessulanum*, *A. opalus*, *A. macrophyllum*. Central and Southern Europe; Western America.
D. oregonensis Granovsky
- 12 (11) Base of ant. segment III not darker than the rest of the segment. Fore femora often hardly thicker than hind femora, not or hardly thicker than siphunculi, very rarely with noticeable pigmentation on the underside. Often also specimens with hardly pigmented thorax with black spots near the bases of the siphunculi.
- 13 (14) Siphunculi either uniform in colour, or only at the very apex faintly smoky. On *Acer trautvetteri*. Caucasus, Russia. *D. caucasicum* Dzhibl.
- 14 (13) Siphunculi even in very pale specimens with dark apices, often much more pigmented and sometimes up to black. On *Acer pseudoplatanus* and *A. opalus*. Western and Central Europe. *D. acerinum* (Wlk.)

References

- BOZHKO, M. P., 1957. Contributions to the study of the aphid fauna (Aphidoidea) of Crimea (in Ukrainian). *Works of the Res. Inst. Biology & Biol. Faculty Charkov* 30 : 211.
- , 1961. New genus and species of Aphidoidea (Homoptera) from Southern Ukraine, Moldavia and Ciscaucasia (in Russian). *Hor. Soc. ent. Un. Sovieticae* 48 : 10—12.
- GOOT, P. VAN DER, 1915. Beiträge zur Kenntnis der Holländischen Blattläuse. Maarlem-Berlin, 1—600.
- GRANOVSKY, A. A., 1939. Three new species of Aphidae (Homoptera). *Proc. ent. Soc. Wash.* 41 : 143—145.
- HILLE RIS LAMBERS, D., 1966. Notes on California aphids, with descriptions of new genera and new species (Homoptera: Aphididae). *Hilgardia* 37 : 583.

Verzoek om medewerking. Wegens mijn belangstelling voor de systematiek van de familie Platygasteridae (Hymenoptera-Proctotrupoidea) vraag ik gekweekt parasietenmateriaal uit Galmuggen (Itoniidae), witte vliegen (Aleurodoidea), schildluizen (Coccoidea) en eventueel andere gastheren.

Te koop gevraagd: Gallenboek van DOCTERS VAN LEEUWEN, tweede druk.

H. J. VLUG, Jacob van Lenneplaan 13, Zeist.

Philanthus triangulum Fabricius (Hym., Sphecidae). Op 14 augustus 1970 werden 6—8 bijenwolven waargenomen op het spoorwegemplacement te Tienraij. Zij bevlogen intensief de wilde reseda, die er temidden van vele andere bloeiende planten duidelijk uitgekozen werd. Twee exemplaren zijn meegenomen en aan de collectie van de Plantenziektenkundige Dienst te Wageningen afgestaan.

P. ZONDERWIJK, Hullenburglaan 6, Bennekom.